Stratix 8000 and 8300 Ethernet Managed Switches

Stratix 8000 Catalog Numbers
1783-MS06T, 1783-MS10T

Stratix 8300 Catalog Numbers
1783-RMS06T, 1783-RMS10T

Stratix Expansion Module Catalog Numbers
1783-MX08T, 1783-MX08F

Stratix CompactFlash Catalog Numbers
1783-MCF, 1783-RMCF

78-18478-04

ALLEN-BRADLEY • ROCKWELL SOFTWARE

Rockwell Automation

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (Publication SGI-1.1 available from your local Rockwell Automation sales office or online at http://literature.rockwellautomation.com) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

WARNING ⚠	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION ⚠	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard and recognize the consequences.
SHOCK HAZARD ⚡	Labels may be on or inside the equipment (for example, a drive or motor,) to alert people that dangerous voltage may be present.
BURN HAZARD ♨	Labels may be on or inside the equipment (for example, a drive or motor,) to alert people that surfaces may reach dangerous temperatures.

North American Hazardous Location Approval

The following information applies when operating this equipment in hazardous locations.	Informations sur l'utilisation de cet équipement en environnements dangereux.
Products marked "CL I, DIV 2, GP A, B, C, D" are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only. Each product is supplied with markings on the rating nameplate indicating the hazardous location temperature code. When combining products within a system, the most adverse temperature code (lowest "T" number) may be used to help determine the overall temperature code of the system. Combinations of equipment in your system are subject to investigation by the local Authority Having Jurisdiction at the time of installation.	Les produits marqués "CL I, DIV 2, GP A, B, C, D" ne conviennent qu'à une utilisation en environnements de Classe I Division 2 Groupes A, B, C, D dangereux et non dangereux. Chaque produit est livré avec des marquages sur sa plaque d'identification qui indiquent le code de température pour les environnements dangereux. Lorsque plusieurs produits sont combinés dans un système, le code de température le plus défavorable (code de température le plus faible) peut être utilisé pour déterminer le code de température global du système. Les combinaisons d'équipements dans le système sont sujettes à inspection par les autorités locales qualifiées au moment de l'installation.
WARNING ⚠	**EXPLOSION HAZARD -** • Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous. • Do not disconnect connections to this equipment unless power has been removed or the area is known to be nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product. • Substitution of components may impair suitability for Class I, Division 2. • If this product contains batteries, they must only be changed in an area known to be nonhazardous.	**AVERTISSEMENT** ⚠	**RISQUE D'EXPLOSION –** • Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement. • Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher les connecteurs. Fixer tous les connecteurs externes reliés à cet équipement à l'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens fournis avec ce produit. • La substitution de composants peut rendre cet équipement inadapté à une utilisation en environnement de Classe I, Division 2. • S'assurer que l'environnement est classé non dangereux avant de changer les piles.

European Hazardous Location Approval

European Zone 2 Certification (The following applies when the product bears the Ex or EEx Marking)

This equipment is intended for use in potentially explosive atmospheres as defined by European Union Directive 94/9/EC.

DEMKO certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of Category 3 equipment intended for use in potentially explosive atmospheres, given in Annex II to this Directive.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-15 and EN 60079-0.

WARNING ⚠	• This equipment must be installed in an enclosure providing at least IP54 protection when applied in Zone 2 environments. • This equipment shall be used within its specified ratings defined by Rockwell Automation. • Provision shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 40% when applied in Zone 2 environments. • Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product. • Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.

ATTENTION ⚠	This equipment is not resistant to sunlight or other sources of UV radiation.

Environment and Enclosure

ATTENTION 	This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC 60664-1), at altitudes up to 2000 m (6562 ft) without derating. This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR 11. Without appropriate precautions, there may be difficulties with electromagnetic compatibility in residential and other environments due to conducted and radiated disturbances. This equipment is supplied as open-type equipment. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The enclosure must have suitable flame-retardant properties to prevent or minimize the spread of flame, complying with a flame spread rating of 5VA, V2, V1, V0 (or equivalent) if non-metallic. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications. In addition to this publication, see the following publications: • Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1 for additional installation requirements • NEMA Standards publication 250, and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosures.

Prevent Electrostatic Discharge

ATTENTION 	This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment: • Touch a grounded object to discharge potential static. • Wear an approved grounding wriststrap. • Do not touch connectors or pins on component boards. • Do not touch circuit components inside the equipment. • Use a static-safe workstation, if available. • Store the equipment in appropriate static-safe packaging when not in use.

ATTENTION 	To comply with the CE Low Voltage Directive (LVD), all connections to this equipment must be powered from a source compliant with the following: Safety Extra Low Voltage (SELV) or Protected Extra Low Voltage (PELV). To comply with UL restrictions, all connections to this equipment must be powered from a source compliant with Class 2 or Limited Voltage/Current.

Stratix Switches

The Stratix 8000 and 8300 Ethernet Managed Switches provide a rugged, easy-to-use, secure switching infrastructure for harsh environments. You can connect these switches to network devices such as servers, routers, and other switches. In industrial environments you can connect Ethernet-enabled industrial communication devices including programmable logic controllers (PLCs), human-machine interfaces (HMIs), drives, sensors, and I/O. You can mount the switches on a DIN rail in an industrial enclosure, on a wall, or panel.

Available Switches, Expansion Modules, and SFP Modules

Catalog Number	Description
Stratix 8000 Switches (Layer 2)	
1783-MS06T	4 10/100BASE-T Ethernet ports and 2 dual-purpose ports, each with a 10/100/1000BASE-T copper port and an SFP (small form-factor pluggable) module slot
1783-MS10T	8 10/100BASE-T Ethernet ports and 2 dual-purpose ports, each with a 10/100/1000BASE-T copper port and an SFP (small form-factor pluggable) module slot
Stratix 8300 Switches (Layer 3)	
1783-RMS06T	4 10/100BASE-T Ethernet ports and 2 dual-purpose ports, each with a 10/100/1000BASE-T copper port and an SFP (small form-factor pluggable) module slot
1783-RMS10T	8 10/100BASE-T Ethernet ports and 2 dual-purpose ports, each with a 10/100/1000BASE-T copper port and an SFP (small form-factor pluggable) module slot
Expansion Modules	
1783-MX08T	Expansion module with 8 10/100BASE-T copper Ethernet ports
1783-MX08F	Expansion module with 8 100BASE-FX fiber optic Ethernet ports
SFP Modules	
1783-SFP100FX	100BASE-FX multi-mode fiber transceiver
1783-SFP1GSX	1000BASE-SX multi-mode fiber transceiver
1783-SFP100LX	100BASE-LX single-mode fiber transceiver
1783-SFP1GLX	1000BASE-LX single-mode fiber transceiver

Required Components

Catalog Number	Description
1606-XL series (recommended) 1606-XLP series (recommended) Or equivalent	Class 2, 24V DC output power supplies

Spare Components

Catalog Number	Description
1783-MCF	Stratix 8000 CompactFlash card
1783-RMCF	Stratix 8300 CompactFlash card

Before You Begin

When determining where to install the switch, verify that these guidelines are met:

- Operating environment is within the range specified in this document.
- Clearance to front and rear panels meet these conditions:
  - Front-panel status indicators can be easily read.
  - Access to ports is sufficient for unrestricted cabling.
  - Front-panel direct current (DC) power and relay connector is within reach of the connection to the DC power source.
- Airflow around the switch and through the vents is unrestricted.

  To prevent the switch from overheating, these minimum clearances must be met:

  - Top and bottom: 105 mm (4.13 in.)
  - Left and right: 90 mm (3.54 in.)
  - Front: 65 mm (2.56 in.)
- Temperature surrounding the unit does not exceed 60 °C (140 °F).

IMPORTANT	When the switch is installed in an industrial enclosure, the temperature within the enclosure is greater than normal room temperature outside the enclosure.
	The temperature inside the enclosure cannot exceed 60 °C (140 °F), the maximum ambient enclosure temperature of the switch.

- Cabling is away from sources of electrical noise, such as radios, power lines, and fluorescent lighting fixtures.
- This product is grounded to a bare metal surface, such as a ground bus or a grounded DIN rail.

Parts List

Verify that you have received these items.

31774-M
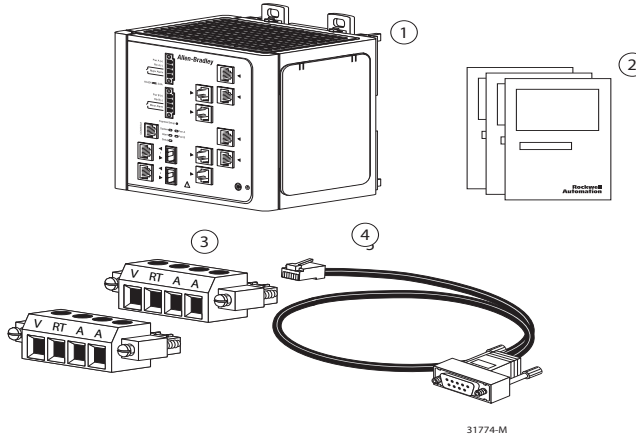
1	1783-MS10T Switch[1]
2	Documentation
3	Power and alarm relay connectors (qty. 2)
4	Console cable

[1]   The 1783-MS10T switch has been shown as an example. Your switch model might look different.

Required Tools and Equipment

Obtain these necessary tools and equipment:

- Ratcheting torque screwdriver that exerts up to 1.69 N•m (15 in•lbs) of pressure
- #6 ring terminal lug for 5.3 mm^2 (10 AWG) wire (such as Thomas & Bett part number 10RC6 or equivalent)
- Crimping tool (such as Thomas & Bett part number WT2000, ERG-2001, or equivalent)
- 5.3 mm^2 (10 AWG) copper ground wire (such as Belden part number 9912 or equivalent)
- Wire-stripping tool
- For panel-mounting without a DIN rail, M5 or #10-24 or #10-32 bolts or screws with 1.27 cm (0.5 in.) O.D. flat washers

For simplified cabling, the automatic medium-dependent interface crossover (auto-MDIX) feature is enabled by default on the switch. With auto-MDIX enabled, the switch detects the required cable type for copper Ethernet connections and configures the interfaces accordingly. Therefore, you can use either a crossover or a straight-through cable for connections to a switch 10/100 or 10/100/1000 Ethernet port, regardless of the type of device on the other end of the connection.

Product Dimensions

This illustration shows dimensions for the 1783-MS10T switch and the 1783-MX08T expansion module. Dimensions for the other switches are the same as the 1783-MS10T switch. Dimensions for the 1783-MX08F expansion module are the same as the 1783-MX08T expansion module.

Switch and Expansion Module

Switch and Expansion Module (mated)

Switch and Expansion Modules (mated)

Switch (side view)
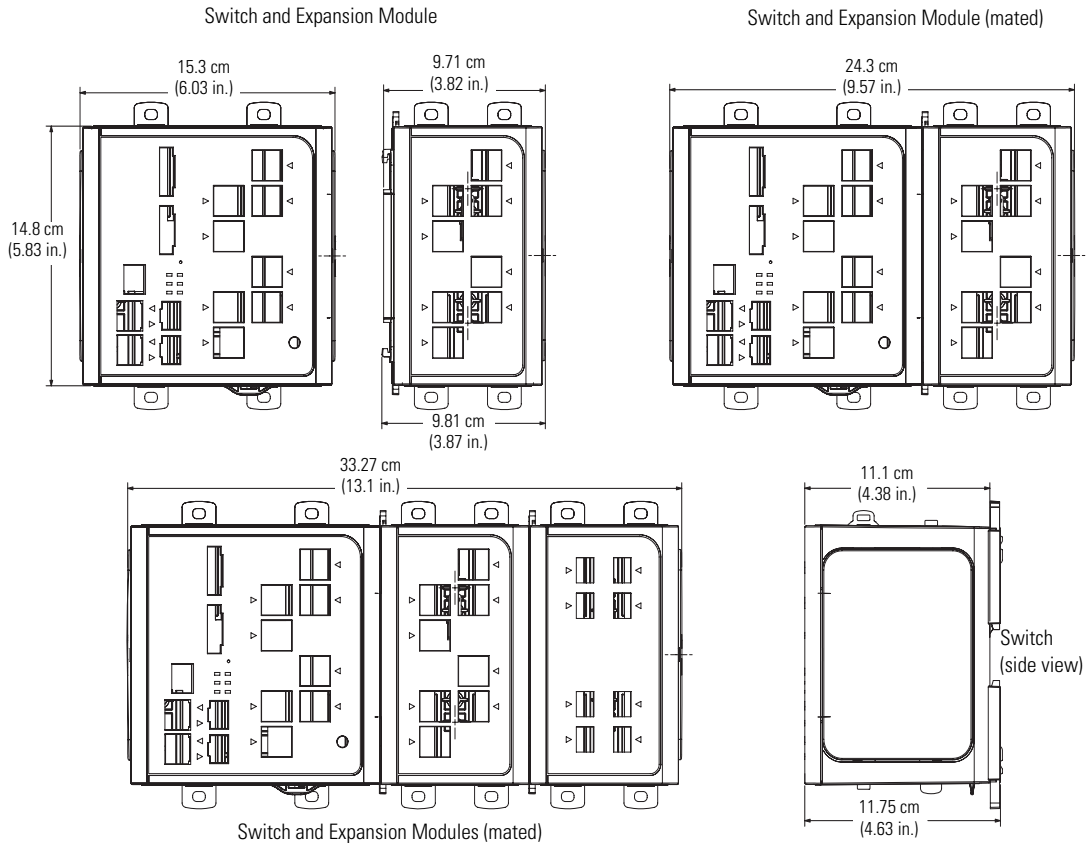
31801-M

For panel-mounting, the height of the center of the mounting holes on both the top and bottom latches measures 8.73 mm (0.34 in.) above the top surface (or below the bottom surface) of the switch.

On the switch base unit, the tab hole center-to-center spacing is 6.83 cm (2.69 in.).

For expansion modules, the tab hole center-to-center spacing is 4.36 cm (1.72 in.).

Install the Switch

To install these switch, follow these steps:

1. Attach expansion modules (optional), see page 10.

2. Mount the switch, either on:
   - DIN rail, see page 13.
   - wall or panel, see page 14.

3. Install a SFP module (optional), see page 16.

4. Ground the switch, see page 16.

5. Wire the DC power source, see page 18.

6. Attach the power and alarm connector, see page 20.

7. Wire external alarms, see page 22.

8. Set up the switch initially with Express Setup, see page 24.

9. Connect to the switch ports:
   - 10/100 copper ports, see page 34
   - dual-purpose uplink (10/100/1000 and SFP fiber) ports, see page 34
   - 100BaseFX, see page 36

10. Install or remove CompactFlash card, see page 37.

WARNING	If you connect or disconnect the communication cable with power applied to this module or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

WARNING	If you connect or disconnect wiring while the field-side power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

Attach Expansion Modules (optional)

IMPORTANT	If you are adding expansion modules, attach the expansion modules to the switch before mounting the switch.

The switch can operate as a standalone device with two uplink ports and either four or eight Fast Ethernet ports, or you can increase the number of Fast Ethernet ports by 8 or 16 by connecting the expansion modules.

You can install one or two expansion modules, limited to these four combinations:

- one copper expansion module (1783-MX08T)
- one fiber expansion module (1783-MX08F)
- two copper expansion modules
- one copper and one fiber expansion module

TIP	Only one 1783-MX08F expansion module is allowed per switch. If a 1783-MX08F fiber expansion module is used in a system with a 1783-MX08T copper expansion module, the fiber expansion module must be installed in the right-most position.

Switch	1783-MX08T Copper Expansion Module	1783-MX08F Fiber Expansion Module

Depending on the mix of switches and expansion modules, you can have up to 24 Fast Ethernet ports.

Follow these steps to connect the expansion modules to the switch.

| **IMPORTANT**	You must add expansion modules to the base unit before applying power to the switch. Remove power from the switch when reconfiguring it.

1. Remove the right side panel by firmly grasping both sides of it in the middle and pulling it outward.

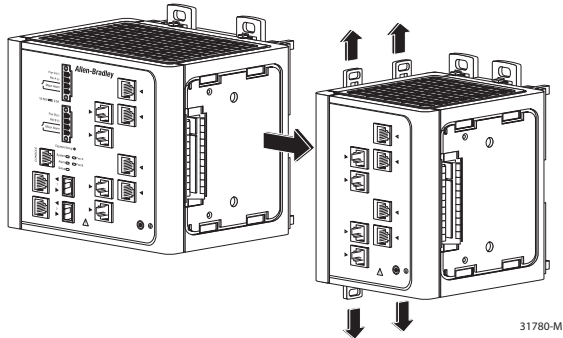   If necessary, use a screwdriver to pry open the side panel.
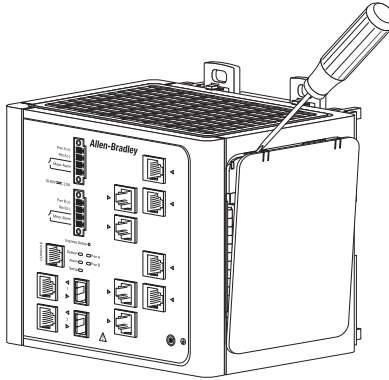
31779-M

2. Remove the protective EMI-connector cover from the side panel.
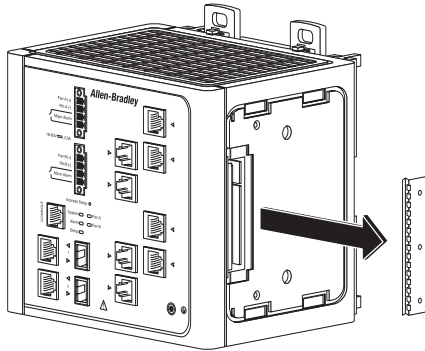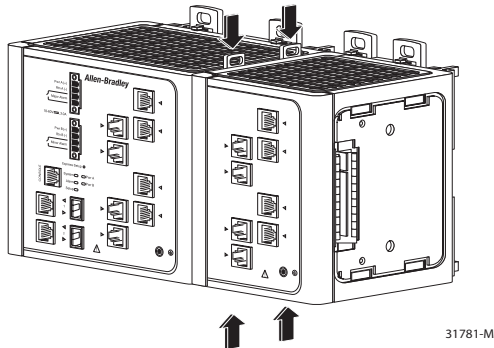

31787-M

3. Push the upper module latches up and the lower module latches down. Then slide the switch and module togetherr.

31780-M

TIP	The expansion module is shown with the side panel removed. Do not remove this panel unless you plan to install another module.

4. Push the upper and lower module latches in to secure the module to the switch.

31781-M

5. If you are installing a second module, repeat steps 1...4, but secure the second module to the right side of the first module.

| **IMPORTANT**	You cannot install an expansion module to the right of 1783-MX08F fiber expansion module.

Mount the Switch on a DIN Rail

ATTENTION

When using DIN rail mounting, additional grounding is also accomplished through the DIN rail to chassis ground. Use zinc plated yellow-chromate steel DIN rail to assist in proper grounding. The use of other DIN rail materials (for example, aluminum or plastic)) that can corrode, oxidize, or are poor conductors, can impede proper grounding. Secure DIN rail to mounting surface approximately every 200 mm (7.8 in.) using end-anchors appropriately and using a washer plate along the entire length of the DIN rail.

Follow these steps to mount the switch on a DIN rail.

1. Insert a sharp tool such as a screwdriver in the space next to the tab, push gently to release the catch, then turn the screwdriver to push the tab out.
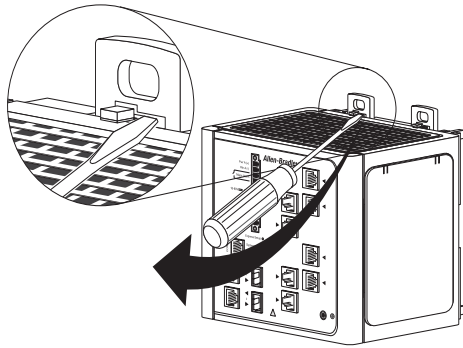
31776-M

2. If you are using a heavy-duty 35 mm x 15 mm (1.38 in. x 0.59 in.) DIN rail, rotate all feet to the extended positions.

   Otherwise, if you are using 35 mm x 7.5 mm (1.38 in. x 0.30 in.) DIN rail, rotate the feet to the recessed positions.

Foot
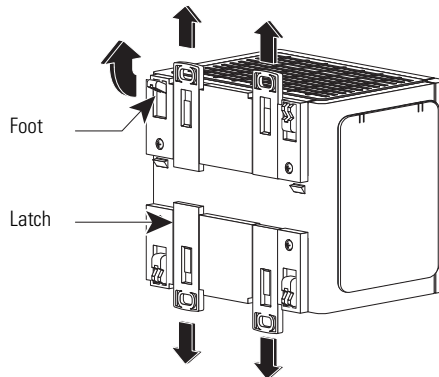
Latch

31777-M

3. Position the rear panel of the switch directly in front of the DIN rail, making sure that the DIN rail fits in the space between the two latches.

DIN Rail

Latch

31778-M

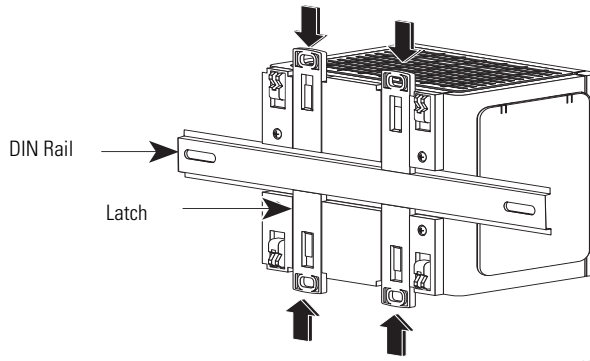4. Push the DIN rail latches in after the switch is over the DIN rail to secure the switch to the rail.

Mount the Switch on a Wall or Panel
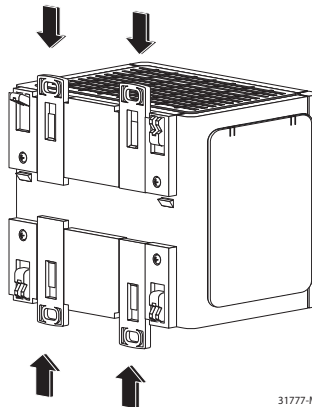
The switch can be mounted on a wall or a panel. To mount the switch to a wall or a panel, follow these steps.

TIP	You will need M5 or #10-24 or #10-32 bolts or screws with 1.27 cm (0.5 in.) O.D. flat washers. This hardware is not provided with the switch.

1. If the DIN rail latches are pushed out, push them in so they are fully locked in place.

31777-M

2. Rotate all feet to their recessed positions so that the switch can mount flat on the wall or panel.

| **TIP** | If greater air circulation around the switch is required, rotate the feet to their extended positions before mounting the switch on the wall. |

3. Position the rear panel of the switch against the wall or a panel in the desired location, as shown in this figure.
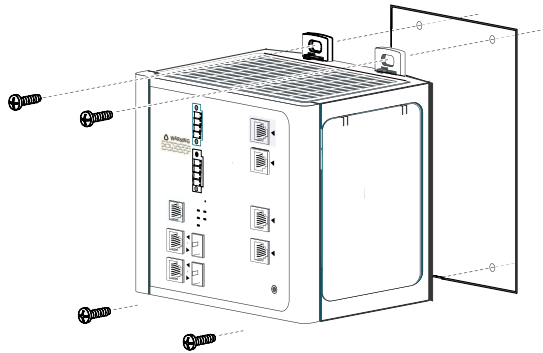
4. Place M5 or #10-24 or #10-32 bolts or screws with 1.27 cm (0.5 in.) O.D. flat washers through each DIN rail latch, and screw them into the wall.

Install a SFP Module (optional)

ATTENTION	SFP modules are static sensitive devices. Always use an ESD wrist strap or similar individual grounding device when handling SFP modules.

IMPORTANT	Using an SFP module other than those provided by Rockwell Automation will disable the switch port.

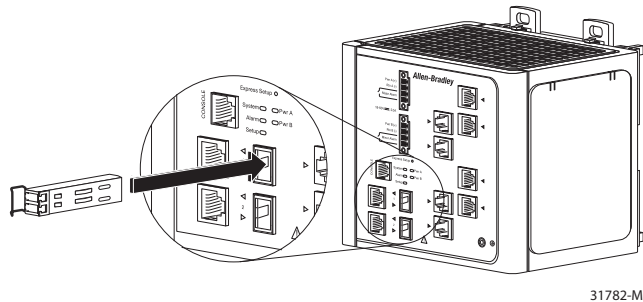| **IMPORTANT**	Installing and removing an SFP module can shorten its useful life. Do not remove and insert SFP modules more often than is absolutely necessary.

Grasp the module on the sides, and insert it into the switch slot until you feel the connector snap into place.

31782-M

ATTENTION	If the SFP module cannot be fully inserted, stop! Do not force the module into the slot. Rotate the SFP module 180 degrees and try again.

Ground the Switch

Follow these steps to connect the switch to a protective ground.

ATTENTION	For proper grounding, you must always connect the power supply functional-ground screw when connecting the power supply. You must provide an acceptable grounding path for each device in your application. For more information on proper grounding guidelines, refer to publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

ATTENTION	You must use the external grounding screw on the front of the switch to ground the switch. Use a 5.3 mm^2 (10 AWG) ground wire.

1. Use a standard Phillips screwdriver or a ratcheting-torque screwdriver with a Phillips head to remove the ground screw from the front panel of the switch.

   Store the ground screw for later use.

2. If your ground wire is insulated, use a wire stripping tool to strip the 5.3 mm^2 (10 AWG) ground wire to 12.7 mm (0.5 in.) ± 0.5 mm (0.02 in.).

   12.7 mm (0.5 in.)
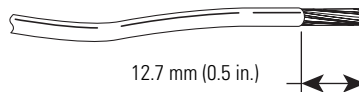
   31789-M

3. Insert the ground wire into the ring terminal lug.

4. Using a crimping tool, crimp the ring terminal to the wire.

   31790-M

5. Slide the ground screw through the ring terminal.

6. Insert the ground screw into the ground-screw opening on the front panel.

31791-M

7. Using a ratcheting torque screwdriver, tighten the ground screw and ring terminal lug to the switch front panel to 0.96 N•m (8.5 lb•in).

8. Attach the other end of the ground wire to a grounded bare-metal surface, such as a ground bus, or a grounded DIN rail.
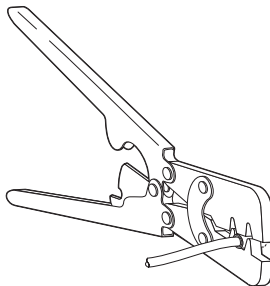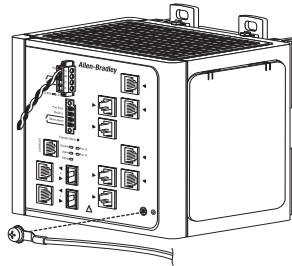
Wire the DC Power Source

WARNING	Before performing any of the following procedures, make sure that power is removed from the DC circuit or the area is nonhazardous before proceeding.

ATTENTION	To comply with the CE Low Voltage Directive (LVD), this equipment must be powered from a source compliant with the safety extra low voltage (SELV) or protected extra low voltage (PELV).
	To comply with UL restrictions, this equipment must be powered from a source compliant with Class 2 or Limited Voltage/Current.

Follow these steps to prepare the DC power cable.

1. Locate the power and alarm relay connector.
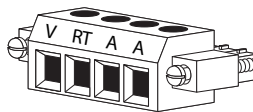
31783-M

2. Identify the positive and return DC power connections on the connector.

The positive DC power connection is labeled V, and the negative DC power connection is the adjacent connection labeled RT.

TIP	Connections labeled A are used for the alarm relay connectors.

3. Measure a length of 0.82…0.52 mm^2 (18…20 AWG) copper wire long enough to connect to the DC power source.

4. Using an 18-gauge wire-stripping tool, strip each of the two wires to 6.3 mm (0.25 in.) ± 0.5 mm (0.02 in.).

   Do not strip more than 6.8 mm (0.27 in.) of insulation from the wire. Stripping more than the recommended amount of wire can leave exposed wire from the connector after installation.

6.8 mm (0.27 in.)
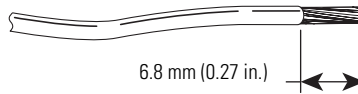
31784-M

5. Insert the exposed part of the positive wire into the connection labeled V and the exposed part of the return wire into the connection labeled RT.

   Make sure that you cannot see any wire lead. Only wire with insulation should extend from the connector.

V
RT
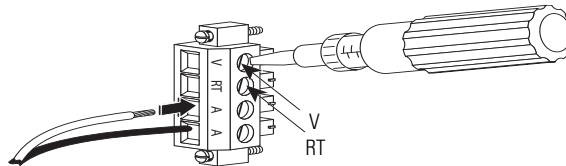
31785-M

6. Use a ratcheting-torque screwdriver to torque the power and relay connector captive screws (above the installed wire leads) to 0.23 N•m (2.0 lb•in.).

7. Connect the other end of the positive wire (the one connected to V) to the positive terminal on the DC power source, and connect the other end of the return wire (the one connected to RT) to the return terminal on the DC power source.

TIP	You can use a second power source to provide redundant power. The alarm relays on the switch can be used to warn you if one of the power supplies fails. The switch will operate properly with only one power source connected at either Pwr A or Pwr B.

8.   If you are installing the switch and are using a second power source, repeat step 3...step 7 with a second power and relay connector.

ATTENTION	If multiple power sources are used, do not exceed the specified isolation voltage.

Attach the Power and Relay Connector

Follow these steps to connect the DC power and relay connector to the switch:.

ATTENTION	The input voltage source of the alarm circuits must be an isolated source and limited to less than or equal to 30V DC, 1 A.

ATTENTION

⚠

Exposure to some chemicals may degrade the sealing properties of materials used in the relay. Periodically inspect the relay and check for any degradation. If the relay appears damaged in any way, replace the switch.

Sealed Device: Relay Model AGN200A03, manufactured by Matsushita Electric Works
Relay Cover: Manufacture of Plastic Material – Nippon Oil Corp.
Designation of Plastic Material – Type FC-100
Generic Name of Plastic Material – Liquid crystal polymer

Relay Body: Manufacture of Plastic Material – Ueno Fine Chemicals Industry Ltd.
Designation of Plastic Material – Type 2125G
Generic Name of Plastic Material – Liquid crystal polymer

Relay Epoxy: Manufacture of Material – Resinous Kasei Co. Ltd.
Designation of Material – Type A-2500BK
Generic Name of Plastic Material – Epoxy Resin

Sealed Device: Relay Model B4GA003Z, manufactured by Fujitsu Takamisawa Electric Co. Ltd.
Relay Cover: Manufacture of Plastic Material – Sumitomo Chemical Co. Ltd.
Designation of Plastic Material – Type E4009
Generic Name of Plastic Material – Liquid crystal polymer

Relay Body: Manufacture of Plastic Material – Sumitomo Chemical Co. Ltd.
Designation of Plastic Material – Type E6807LHF
Generic Name of Plastic Material – Liquid crystal polymer

Relay Epoxy: Manufacture of Material – Sumitomo Bakelite Co. Ltd.
Designation of Material – Type 'SUMIMAC' ECR-9750K2
Generic Name of Plastic Material – Epoxy Resin

1. Insert the power and relay connector into the Pwr A receptacle on the switch front panel.

31786-M
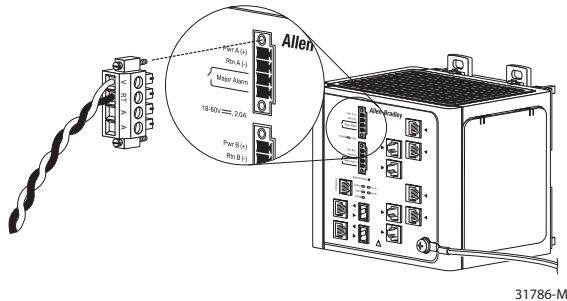
2. Use a screwdriver to tighten the captive screws on the sides of the power and relay connector.

3. If a second power source is required, insert a second power and relay connector into the Pwr B receptacle on the switch front panel**.**

ATTENTION	If multiple power sources are used, do not exceed the specified isolation voltage.

.

31788-M
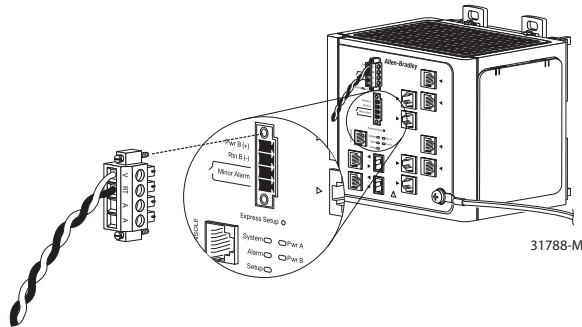
4. Use a screwdriver to tighten the captive screws on the sides of the second power and relay connector.

Wire External Alarms (optional)

The alarm relays on the switch are normally open. To connect an external alarm device to the relays, you must connect two relay contact wires to complete an electrical circuit. Because each external alarm device requires two connections to a relay, the switch supports a maximum of two external alarm devices.

ATTENTION	The input voltage source of the alarm circuits must be an isolated source and limited to less than or equal to 50Vdc, 1A. For wire connections to the power and relay connector, you must use UL and CSA rated, style 1007 or 1569 twisted-pair copper appliance wiring material (AWM) wire (such as Belden part number 9318).

Follow these steps to wire alarms.

1. Measure two strands of twisted-pair wire (18...20 AWG) long enough to connect to the external alarm device.

2. Use a wire stripper to remove the casing from both ends of each wire to 6.3 mm (0.25 in.) ± 0.5 mm (0.02 in.).

IMPORTANT	Do not strip more than 6.8 mm (0.27 in.) of insulation from the wires. Stripping more than the recommended amount of wire can leave exposed wire from the power and relay connector after installation.

3. Insert the exposed wires for the external alarm device into the two connections labeled A, as shown in the following figure.

31838-M
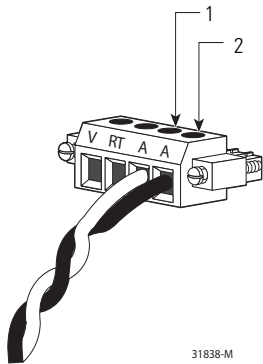
1	External device, relay wire A connection 1	**2**	External device, relay wire A connection 2

4. Use a flat-head screwdriver to torque the power and relay connector captive screw (above the installed wire leads) to 0.23 N•m (2.0 lb•in.).

31785-M
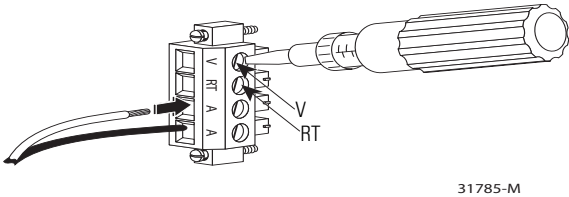
5. Repeat steps 1…4 to insert the input and output wires of an additional external alarm device into the second power and relay connector.

The following figure shows the completed wiring for two power supplies and two external alarm devices.
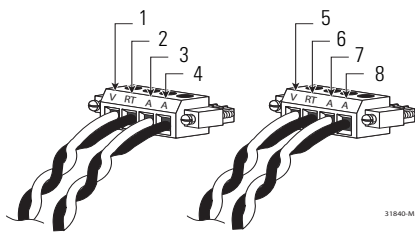
1	Power source A positive connection	**5**	Power source B positive connection
2	Power source A return connection	**6**	Power source B return connection
3	External device 1, relay wire major alarm connection	**7**	External device 2, relay wire minor alarm connection
4	External device 1, relay wire major alarm connection	**8**	External device 2, relay wire minor alarm connection

Set Up the Switch Initially with Express Setup

When you first set up the switch, use Express Setup to enter the initial IP address. Doing this enables the switch to be used as a managed switch. You can then access the switch through the IP address for additional configuration.

You need this equipment to set up the switch:

- A personal computer with Windows 2000, Windows Vista, Windows 2003, or XP operating system installed.
- A web browser (Internet Explorer 6.0, Internet Explorer 7.0, or Firefox 2.0) with JavaScript enabled.
- A straight-through or crossover Category 5 Ethernet cable to connect your personal computer to the switch.

Do the following to configure your computer:

- Disable any wireless interface running on your personal computer.
- Disable other networks in your system.
- Set up the DHCP protocol for Auto IP, not static.
- Disable the static DNS server.
- Disable browser proxy settings.

  Typically, browser settings are located in Tools>Internet Options>Connections>LAN Settings.

Follow these steps to run Express Setup.

1. Make sure that at least one switch Ethernet port is available for Express Setup.

IMPORTANT	Do not use the console port for Express Setup.

During Express Setup, the switch acts as a DHCP server. If your personal computer has a static IP address, change your personal computer settings before you begin to temporarily use DHCP.

2. Apply power to the switch.

When the switch powers on, it begins the power-on self-test (POST). During POST, the status indicators flash while a series of tests verify that the switch functions properly. Wait for the switch to complete POST, which takes approximately 3 minutes.

3. Make sure that POST has completed by verifying that the EIP Mod and Setup status indicators are flashing green.

If the switch fails POST, the EIP Mod status indicator turns red.

EIP Mod Status Indicator

Setup Status Indicator

31793-M

if your switch fails POST.

4. Press and release the Express Setup button. Wait for a few seconds until the status indicator on one of the unconnected switch ports flashes green.

This button is recessed 16 mm (0.63 in.) behind the front panel. Use a small tool, such as a paper clip, to reach the button.

Express Setup Button
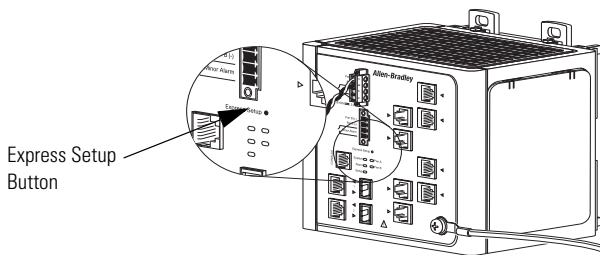
31793-M

5. Connect a Category 5 Ethernet cable (not provided) from the flashing switch port to the Ethernet port on your personal computer.
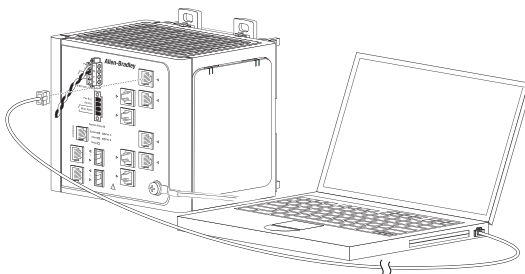
31794-M

TIP	If you wait too long to connect the cable, the Setup status indicator turns off. Go back to step 4 on page 25.

The port status indicators on your personal computer and on the switch both flash while the switch configures the connection. Refer to Status Indicators on page 41 for more information

6. While the Setup status indicator flashes green, start an Internet browser session on the personal computer.

The switch prompts you for the default switch username and password.

7. Leave the username field blank.

8. Enter the default switch password, switch.

9. If the window does not appear, do the following:
    - Enter the URL of a well-known website in your browser to be sure the browser is working correctly.
      Your browser will then automatically be directed to the Express Setup web page.

    - Verify that any proxy settings or pop-up blockers are disabled on your browser.
    - Verify That any wireless interface is disabled on your personal computer.

<table>
<tr><td>**TIP**</td><td>You may also enter the URL <u>http://169.254.0.1/express-setup.htm</u> to access the Express Setup page directly.</td></tr>
</table>

10. Enter the network settings

    All entries must be English letters and Arabic numbers

.

Field	Description
Management Interface (VLAN ID)	The name and ID of the management VLAN through which the switch will be managed. Select an existing VLAN to be the management VLAN. The default ID is 1. The default name for the management VLAN is default. The number can be from 1…1001. Be sure that the switch and your network management station are in the same VLAN. Otherwise, you lose management connectivity to the switch. The management VLAN is the broadcast domain through which management traffic is sent between specific users or devices. It provides broadcast control and security for management traffic that should be limited to a specific group of users (such as the administrators of your network). It also ensures secure administrative access to all devices in the network at all times.
IP Assignment Mode	The IP assignment mode determines whether the switch IP information is manually assigned (static) or is automatically assigned by a Dynamic Host Configuration Protocol (DHCP) server. The default is Static. We recommend that you select Static and manually assign the IP address for the switch. You can then use the same IP address whenever you want to access the Device Manager web interface. If you select DHCP, the DHCP server automatically assigns an IP address, subnet mask, and default gateway to the switch. As long as the switch is not restarted, the switch continues to use the assigned IP information, and you are able to use the same IP address to access the Device Manager web interface. If you manually assign the switch IP address and your network uses a DHCP server, be sure that the IP address that you give to the switch is not within the range of addresses that the DHCP server will automatically assign to other devices. This prevents IP address conflicts between the switch and another device.
IP Address	The IP address is a unique identifier for the switch in a network. The format is a 32-bit numeric address written as four numbers separated by periods. Each number can be from 0 to 255. This field is only enabled if the IP assignment mode is Static. Make sure that the IP address that you assign to the switch is not being used by another device in your network. The IP address and the default gateway cannot be the same. You cannot assign the switch with an IP address in the 10.0.0.0 network.
Subnet Mask	The subnet mask is the network address that identifies the subnetwork (subnet) to which the switch belongs. Subnets are used to segment the devices in a network into smaller groups. The default is 255.255.255.0. This field is only enabled if the IP assignment mode is Static.

Field	Description
Default Gateway (optional)	The IP address for the default gateway. A gateway is a router or a dedicated network device that enables the switch to communicate with devices in other networks or subnetworks. The default gateway IP address should be part of the same subnet as the switch IP address. The switch IP address and the default gateway IP address cannot be the same. If all of your devices are in the same network and a default gateway is not used, you do not need to enter an IP address in this field. This field is enabled only if the IP assignment mode is Static. You must specify a default gateway if your network management station and the switch are in different networks or subnetworks. Otherwise, the switch and your network management station cannot communicate with each other.
CIP VLAN	Enter the CIP VLAN settings only if you want CIP traffic to be on a separate VLAN from the management VLAN. For complete information about the CIP VLAN settings, click Help on the Device Manager web interface toolbar. Enter the Optional Settings now, or enter them later by using the Device Manager web interface: - Enter a Host Name for the switch. - The date and time fields are populated from your PC. - Click Enable to use Daylight Saving Time. For complete information about the optional settings, click Help on the Device Manager web interface toolbar.
IP Address	The IP address is a unique identifier for the switch in a network. The format is a 32-bit numeric address written as four numbers separated by periods. Each number can be from 0…255. If the CIP VLAN is different from the management VLAN, you must specify an IP address for the CIP VLAN. Be sure that the IP address that you assign to the switch is not being used by another device in your network.
Subnet Mask	The subnet mask is the network address that identifies the subnetwork (subnet) to which the switch belongs. Subnets are used to segment the devices in a network into smaller groups. The default is 255.255.255.0. If the CIP VLAN is different from the management VLAN, you must specify a subnet mask for the CIP VLAN.
Password	The password for the switch can have up to 63 alphanumeric characters, can start with a number, is case sensitive, and can have embedded spaces. The password cannot be a single digit, it cannot contain a ? or a tab, and it does not allow spaces at the beginning or the end. This password is also used as the Control Industrial Protocol (CIP) security password. We recommend that you provide a password to the switch to secure the access to the Device Manager web interface.
Confirm Password	Enter the switch password again.

11. Enter the optional settings now, or enter them later by using the Device Manager web interface.

In this field	Do this
Host Name	A name for the switch. The name can have up to 31 alphanumeric characters. The name cannot contain a ?, a space, or a tab. The default is Switch. We recommend entering either the name, the location, or the IP address of the switch to help to identify the switch during monitoring or troubleshooting.
System Date	This is the date that the switch read from the network management station or that was manually set during the initial setup. If you change the date, the change takes effect immediately after you click Submit.
System Time	This is the time that the switch read from the network management station or that was manually set during the initial setup. If you change the time, the change takes effect immediately after you click Submit.

> **TIP** For more information about the optional settings, from the toolbar, click Help.

12. Click Submit to save the information that you entered and to finish the basic configuration.
    - Once you click Submit, the switch initializes its configuration for typical industrial EtherNet/IP applications.
      The switch then re-directs you to the Device Manager web interface logon pages. From here, you can continue to launch the Device Manager web interface for further configuration, or exit.

    - If you click Cancel, the fields are cleared, and you can start over.

13. Turn off DC power at the source, disconnect all cables to the switch, and install the switch in your network.

14. After you complete Express Setup, refresh the personal computer IP address.
    - For a dynamically-assigned IP address, disconnect the personal computer from the switch, and reconnect the personal computer to the network. The network DHCP server assigns a new IP address to the personal computer.
    - For a statically-assigned IP address, change it to the previously configured IP address.

For information on more advanced configuration options, see the Stratix 8000 and 8300 Ethernet Managed Switches User Manual, publication 1783-UM003.

Configure and Manage the Switch

After you complete Express Setup, you can further configure and manage the switch by using one of these options:

- Device Manager web interface (supplied with the switch)
- RSLogix 5000 software, version 16 or later
- Cisco Network Assistant (CNA)
- The switch software's command line interface (CLI)
- SNMP management applications

For information on these configuration options, see the Stratix 8000 and 8300 Ethernet Managed Switches User Manual, publication 1783-UM003.

Use the Device Manager Web Interface

You can manage the switch by using the Device Manager web interface to simplify configuration and monitoring of the switch. You can access the Device Manager web interface from anywhere in your network through a Web browser.

1. Launch a Web browser on your personal computer or workstation.

2. Enter the switch IP address in the web browser, and click Enter.

   You see the Device Manager web interface page.

3. Use the Device Manager web interface to perform basic switch configuration and monitoring.

Use RSLogix 5000 Software

You can use RSLogix 5000 software to add the switch to a controller's I/O configuration tree and to configure and monitor the switch.

IMPORTANT	These steps are required before you can go online to configure and monitor the switch.

1. Open the project file for the controller that will be monitoring the switch.

2. Select the Ethernet interface through which the controller will communicate with the switch.

3. Add the switch to the project.

4. On the Module Properties dialog box, enter this information.

On this tab	In this field	Enter
General	Name	A name you choose for the switch
	Description	A description that helps you remember something important about the switch
	IP Address	Enter the IP address you added when you performed the Express Setup.

5. Click OK.

    The switch is added to the project.

6. Go online with the switch by choosing Communictions>Go online.

    You can now configure and monitor the switch using the switch AOP.

Download Cisco Network Assistant

Cisco Network Assistant is a software tool that you download from Cisco.com and run on your PC. It offers advanced options for configuring and monitoring multiple devices, including switches, switch clusters, switch stacks, routers, and access points.

1. Go to http://www.cisco.com/go/NetworkAssistant.

    You must be a registered Cisco.com user, but you need no other access privileges.

2. Find the Network Assistant installer.

3. Download the Network Assistant installer, and run it.

    You can run it directly from the Web if your browser offers this choice.

4. When you run the installer, follow the displayed instructions.

5. In the final panel, click Finish to complete the Network Assistant installation.

    See the Network Assistant online help for more information.

Use the Command-Line Interface

You can manage the switch from the command-line interface (CLI) by connecting your personal computer directly to the switch console port or through the network by using Telnet. This procedure explains how to access the CLI through the console port.

To connect a computer to the console port, use the supplied RJ45-to-DB-9 adapter cable. To connect a terminal to the console port, you need to provide an RJ45-to-DB-25 female DTE adapter.

WARNING	If you connect or disconnect the console cable with power applied to the switch or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.
⚠	To verify switch operation, perform POST on the switch in a nonhazardous location before installation.

The computer or terminal must support VT100 terminal emulation. The terminal-emulation software—frequently a computer application such as HyperTerminal—makes communication between the switch and your computer or terminal possible during the POST.

Follow these steps to connect the computer or terminal to the switch.

1. Make sure that your terminal-emulation software is configured to communicate with the switch using hardware flow control.

2. Configure the communication rate and data format of the personal computer or terminal to match these console-port default characteristics.
   - 9600 K bps communication rate
   - 8 data bits
   - 1 stop bit
   - no parity

   After gaining access to the switch, you can change the port communication rate. See the switch software configuration guide for instructions.

3. Connect the supplied RJ45-to-DB-9 adapter cable to the standard 9-pin serial port on the personal computer.

4. Connect the other end of the cable to the console port on the switch.

WARNING	The console port is intended for temporary local programming purposes only and not intended for permanent connection. If you connect or disconnect the console cable with power applied to this module or the programming device on the other end of the cable, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

5. Start a terminal-emulation program on the personal computer.

6. Configure the personal computer terminal emulation software for 9600 bits per second, 8 data bits, no parity, 1 stop bit, and no flow control.

7. Use the CLI to enter commands to configure the switch.

   See the Cisco IE3000 Switch Command Reference, available at www.cisco.com for more information.

Use SNMP Management Applications

You can use SNMP management applications such as HP OpenView to configure and manage the switch. You also can manage it from an SNMP-compatible workstation that is running platforms such as HP OpenView or SunNet Manager.

Connect to 10/100 Copper Ports

1. Insert a straight-through, twisted four-pair, Category 5e or better cable with a RJ45 connector into the port.

To 10/100 ports
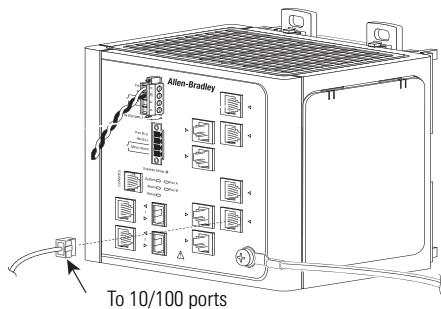
31795-M

2. Insert the other cable end into an RJ45 connector on the other device.

Connect to Dual-purpose Uplink (10/100/1000 and SFP Fiber) Ports

The switches have two dual-purpose uplink ports. Each dual-purpose uplink port has a 10/100/1000 RJ45 connector for a copper interface, and a slot for an SFP module.

Only one port of the dual-purpose port can be active at a time. If an SFP module port is connected, the SFP module port has priority.

Connect to 10/100/1000 Uplink Ports

1. Insert a straight-through, twisted four-pair, Category 5e or better cable with a RJ45 connector into the port.

To 10/100/1000 ports
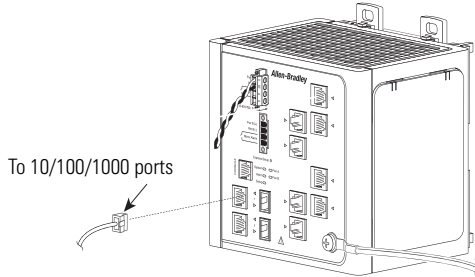
31795-M

2. Insert the other cable end into an RJ45 connector on the other device.

Connect to SFP Fiber Ports

Follow these steps if you installed an optional SFP module.

ATTENTION	Class 1 laser product. Laser radiation is present when the system is open and interlocks bypassed. Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

TIP	For detailed instructions on installing, removing, and connecting to SFP modules, see the documentation that shipped with the SFP module.

1. Insert a fiber optic cable with an LC connector into the SFP module (installed in the SFP fiber port).

31796-M

2. Insert the other cable end into the other device.

Connect to 100BaseFX Ports

ATTENTION

Class 1 laser product. Laser radiation is present when the system is open and interlocks bypassed. Only trained and qualified personnel should be allowed to install, replace, or service this equipment.
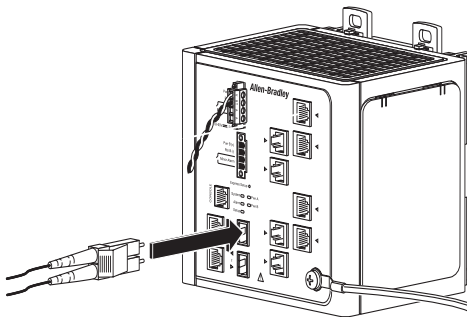
1. Insert a fiber optic cable with an LC connector into the 100BASE-FX port of the 1783-MX08F expansion module.
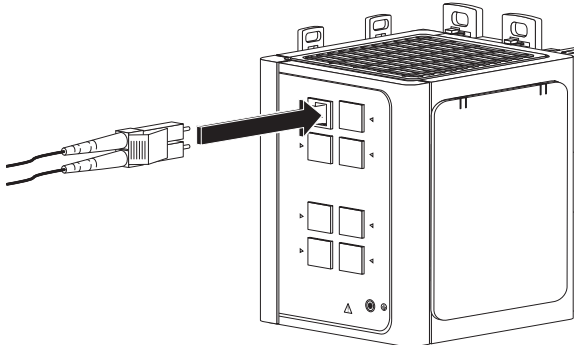
31797-M

2. Insert the other cable end into the other device.

Install or Remove the CompactFlash Card

The switches ship with the CompactFlash card installed. Follow this procedure when you need to install or remove it from the switch.

WARNING	When you insert or remove the CompactFlash Card while power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

Install or remove the CompactFlash card by grasping the tab on the card and either inserting it or removing it from the slot at the bottom of the switch.

31792-M
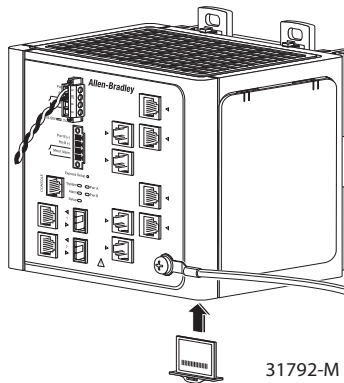
IMPORTANT	You can install and remove the CompactFlash card while the switch is powered. However, If you do not have a CompactFlash card installed in the switch, you will be unable to do the following:

- start the Device Manager web interface when you apply power to the switch
- save configuration changes you made with the AOP via RSLogix 5000 software
- boot up the switch (the POST will not begin)

Reset the Switch to Factory Defaults

Follow this procedure if you need to restore the switch to its factory default settings.

TIP	This procedure resets the switch to its original factory settings. Any configuration changes you may have made will be lost.

1. Remove power from the switch.

2. Reapply power to the switch.

3. While the switch is powering up, press and hold the Express Setup button.

4. When the EIP Mod, EIP Net and Setup status indictors turn red, release the Express Setup button.

   The switch continues powering up in its factory default state.

5. Follow the <u>Set Up the Switch Initially with Express Setup</u> procedure on <u>page 24</u> to reconfigure the switch.

Troubleshoot the Switch

The status indicators on the front panel provide troubleshooting information about the switch. They show power-on self-test (POST) failures, port-connectivity problems, and overall switch performance. You can also get statistics from the browser interface, the command-line interface (CLI), or a Simple Network Management Protocol (SNMP) workstation.

Switch POST Results

As power is applied to the switch, it begins the POST, a series of tests that runs automatically to ensure that the switch functions properly. It might take several minutes for the switch to complete POST.

POST starts with status indicator tests that cycle once through the EIP Mod, EIP Net, Setup, Pwr A, and Pwr B status indicators. While POST proceeds, the EIP Mod status indicator blinks green, and all the other status indicators remain off.

If POST completes successfully, the System status indicator changes to solid green, and the other status indicators display their normal operating status. If the switch fails POST, the System status indicator turns red.

ATTENTION	POST failures are usually fatal. Contact your Rockwell Automation technical support representative if your switch does not pass POST.

POST Results With a Terminal

If you have a terminal connected to the console port, you can also view POST status and test results on the terminal. If the terminal displays garbled characters, you might need to reset the terminal-emulation software to 9600 bits per second.

Bad or Damaged Cable

Always make sure that the cable does not have marginal damage or failure. A cable might be just good enough to connect at the physical layer, but it could corrupt packets as a result of subtle damage to the wiring or connectors.

This situation is likely when the port has many packet errors or the port constantly loses and regains the link. You should:

- swap the copper or fiber-optic cable with a known, good cable.
- look for broken, bent, or missing pins on cable connectors.
- rule out any bad patch panel connections or media convertors between the source and destination.

  If possible, bypass the patch panel, or eliminate faulty media convertors (fiber-optic-to-copper).

- try the cable in another port or interface, if possible, to see if the problem follows the cable.

Ethernet and Fiber Cables

Make sure that you have the correct cable type for the connection.

- Use Category 3 copper cable for 10 Mb/s UTP connections.
- Category 5, 5e, or 6 UTP or STP cable may be used for 10/100 Mbps connections.
- For 1000 Mbps (1 gigabit per second) connections, use either Category 5e or Category 6 UTP or STP cable.
- For fiber-optic connectors, verify that you have the correct cable for the distance and the port type.
- Make sure that the connected device ports both match and use the same type encoding, optical frequency, and fiber type.

Link Status

Verify that both sides have a network link. A single broken wire or one shut down port can cause one side to show a link, but not the other side. A Link status indicator does not guarantee that the cable is fully functional. The cable might have encountered physical stress that causes it to function at a marginal level. If the Link status indicator for the port is not lit, do the following:

- Connect the cable from the switch to a known good device.
- Make sure that both ends of the cable are connected to the correct ports.
- Verify that both devices have power.
- Verify that you are using the correct cable type.
- Rule out loose connections. Sometimes a cable appears to be seated, but is not. Disconnect the cable, and then reconnect it.

Transceiver Issues

Use only Rockwell Automation SFP modules on the switch. Each SFP module has an internal serial EEPROM that is encoded with security information. This encoding identifies and validates that the module meets the requirements for the switch. Other manufacturers' SFP modules will not function correctly.

Check these items:

- Bad or incorrect SFP module.

  Exchange the suspect module with a known good module. Verify that the module is supported on this platform.

- Use the CLI show interfaces command or the CLI show int status command to verify the port or module error-disabled or shutdown status. Re-enable the port if needed.
- Make sure that all fiber connections are properly cleaned and securely connected.

Port and Interface Settings

A cause of port connectivity failure can be a disabled port. Verify that the port or interface is not disabled or powered down for some reason. If a port or interface is manually shut down on one side of the link or the other side, the link does not come up until you re-enable the port. Use the CLI show interfaces privileged EXEC command to verify the port or interface error-disabled, disabled, or shutdown status on both sides of the connection. If needed, re-enable the port or the interface.

Status Indicators

The switches and expansion modules have these status indicators.

Switch and Port Status Indicators

EIP Mod Status Indicator
EIP Net Status Indicator
Setup Status Indicator

PWR B Status Indicator
PWR A Status Indicator
Dual-purpose Port Status Indicator
Port Status Indicator

31793-M
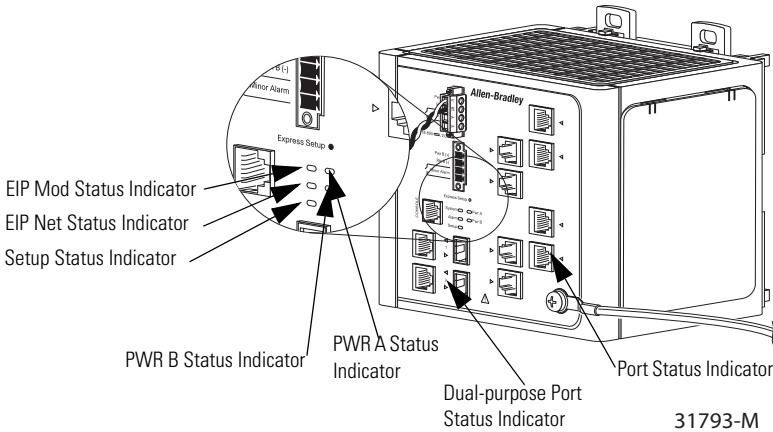
Indicator	State	Description
EIP Mod (EtherNet/IP module status)	Off	No power. Check the power supply and cabling.
	Solid green	The switch is operating properly.
	Flashing green	The switch has not been configured as a managed switch (for example, Express Setup was not performed, no IP address, no password). The switch is operating as an unmanaged switch.
	Flashing red	A recoverable minor fault, such as an incorrect configuration, has occurred.
	Solid red	A non-recoverable major fault has occurred. Cycle power. If the problem persists, contact Rockwell Automation Technical Support.
	Flashing green/red	The switch is performing a POST.

Indicator	State	Description
EIP Net (EtherNet/IP network status)	Off	No power or no IP address. • Check the power supply and cabling. • Make sure switch is properly configured.
	Solid green	The device has at least one established EtherNet/IP connection.
	Flashing green	No EtherNet/IP connection yet, but the switch has obtained an IP address.
	Flashing red	EtherNet/IP connection has timed out.
	Solid red	Duplicate IP address. The switch has detected that its IP address is already in use.
	Flashing green/red	The switch is performing a POST.
Setup	Off	Switch is configured as a managed switch.
	Solid green	Switch is in initial setup.
	Flashing green	Switch is in one of the following states: • initial setup • recovery • initial setup incomplete
	Solid red	Switch failed to start initial setup or recovery because there is no available switch port to which to connect the management station. Disconnect a device from a switch port, and press the Express Setup button.
PWR A and PWR B	Off	Power is not present on the circuit, or power is not applied to the system.
	Solid green	Power is present on the associated circuit.

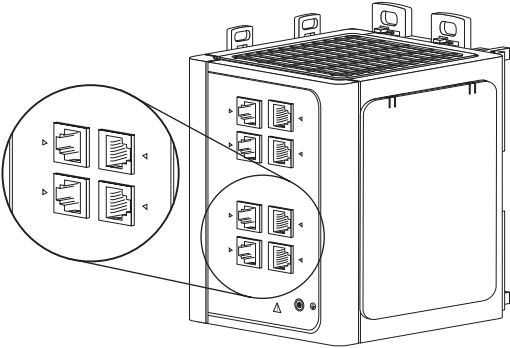| Indicator	State	Description
Port	Off	No link.
	Solid green	Link present.
	Flashing green	Activity. Port is sending or receiving data.
	Flashing amber	A link blocked by spanning tree violation is sending or receiving data.
	Alternating green/amber	Link fault. Error frames can affect connectivity, and errors such as excessive collisions, CRC errors, and alignment and jabber errors are monitored for a link-fault indication (RJ45 connection only).
	Solid amber	Port is not forwarding. Port was disabled by management, an address violation, or spanning tree violation. After a port is reconfigured, the port status indicator can remain amber for up to 30 seconds while spanning tree checks the network for possible loops.

Dual-purpose Port Status Indicators

The status indicators on a dual-purpose port, as shown in the following figure, show whether the RJ45 connector or an SFP module is active. The port can be configured as either a 10/100/1000 port through the RJ45 connector or as an SFP module, but not both. The status indicators show which port is being used, and current port activity.

RJ45 Port

RJ45 Port In-use and Activity Status Indicator

SFP Module Port

SFP Module Port In-use and Activity Status Indicator

State	Description
Off	No link.
Solid green	Link present.
Flashing green	Activity. Port is sending or receiving data.
Flashing amber	A link blocked by spanning tree is sending or receiving data.
Alternating green/amber	Link fault. Error frames can affect connectivity, and errors such as excessive collisions, CRC errors, and alignment and jabber errors are monitored for a link-fault indication (RJ45 connection only).
Solid amber	Port is not forwarding. Port was disabled by management, an address violation, or spanning tree violation. After a port is reconfigured, the port status indicator can remain amber for up to 30 seconds while spanning tree checks the network for possible loops.

Expansion Module Status Indicators

State	Description
Off	No link.
Solid green	Link present.
Flashing green	Activity. Port is sending or receiving data.
Flashing amber	A link blocked by spanning tree is sending or receiving data.
Alternating green/amber	Link fault. Error frames can affect connectivity, and errors such as excessive collisions, CRC errors, and alignment and jabber errors are monitored for a link-fault indication (RJ45 connection only).
Solid amber	Port is not forwarding. Port was disabled by management, an address violation, or spanning tree violation.

After a port is reconfigured, the port status indicator can remain amber for up to 30 seconds while spanning tree checks the network for possible loops. |

Specifications

Stratix 8000 and 8300 Ethernet Managed Switches and Expansion Modules
Catalog Numbers 1783-MS06T, 1783-MS10T, 1783-RMS06T, 1783-RMS10T, 1783-MX08T, 1783-MX08F

Attribute	Value
Enclosure type rating	Meets IP20
Inrush current, max	2.0 A
Switch input rating	18-60V DC input 1A max DC input
Alarm relay rating	30V DC max 1A max
Switch base power dissipation 1783-MS06T 1783-MS10T	15.1 W 15.7 W
Expansion module power dissipation 1783-MX08T 1783-MX08F	2.8 W 10.1 W
Isolation voltage Switch base Expansion module	75 V (continuous), Basic Insulation Type Type tested at 1000V AC for 60 s, DC power ports to ground, DC power ports to Ethernet ports, and DC power ports to Alarm (relay) ports No isolation between individual Ethernet ports No isolation between Console port and system 75 V (continuous), Basic Insulation Type Type tested at 1000V AC for 60 s, Ethernet ports to expansion backplane No isolation between individual Ethernet ports
Wire size	Ethernet connections: RJ45 connector according to IEC 60603-7, 2 or 4 pair Category 5e minimum cable according to TIA 568-B.1 or Category 5 cable according to ISO/IEC 24702 DC Power and Alarm connections: 0.5... 0.8 mm^2 (20...18 AWG) solid or stranded copper wire rated at 90 °C (194 °F) or greater, 1.2 mm (3/64 in.) insulation max Functional Ground connection: 3.3... 5.3 mm^2 (12...10 AWG) solid or stranded copper wire rated at 75 °C (167 °F) or greater
Torque	0.23 N•m (2.0 lb•in.) on power and alarm connectors
Fiber expansion module Ethernet data rate	100 Mbps
Fiber expansion module connecting mode	Full duplex

Stratix 8000 and 8300 Ethernet Managed Switches and Expansion Modules
Catalog Numbers 1783-MS06T, 1783-MS10T, 1783-RMS06T, 1783-RMS10T, 1783-MX08T, 1783-MX08F

Attribute	Value
Fiber expansion module optical wavelength	1310 nm
Fiber expansion module optical cable max length	Graded index multimode fiber; 2000 m
Fiber expansion module optical link budget	8 db with 62,5 / 125 µm multimode cable 4 db with 50 / 125 µm multimode cable
Fiber expansion module optical connector type	LC
Wiring category[1]	2 - on alarm ports 2 - on DC power ports 2 - on Ethernet ports
Pilot duty rating (switch)	Not rated
North American temp code	T4
IEC temp code	T4

(1)   Use this Conductor Category information for planning conductor routing. Refer to Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Environmental Specifications

Attribute	Value
Temperature, operating	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -40…60 °C (-40…140 °F)
Temperature, nonoperating	IEC 60068-2-1 (Test Ab, Unpackaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Non-operating Thermal Shock): -40…85 °C (-40…185 °F)
Relative humidity	IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5…95% noncondensing
Vibration	IEC 60068-2-6 (Test Fc, Operating): 2 g @ 10…500 Hz
Shock, operating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 20 g
Shock, nonoperating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 30 g
Emissions	CISPR 11: Group 1, Class A

Environmental Specifications

Attribute	Value
ESD immunity	IEC 61000-4-2: 8 kV contact discharges 15 kV air discharges
Radiated RF immunity	IEC 61000-4-3: 20V/m with 1 kHz sine-wave 80% AM from 80…1000 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 1890 MHz 10V/m with 1 kHz sine-wave 80% AM from 1000…2700 MHz
EFT/B immunity	IEC 61000-4-4: ±4 kV at 2.5 kHz and ±2 kV at 5 kHz on DC power ports ±4 kV at 2.5 kHz and ±2 kV at 5 kHz on alarm ports ±4 kV at 2.5 kHz and ±2 kV at 5 kHz on Ethernet ports
Surge transient immunity	IEC 61000-4-5: ±1 kV line-line(DM) and ±2 kV line-earth(CM) on DC power ports ±1 kV line-line(DM) and ±2 kV line-earth(CM) on alarm ports ±2 kV line-earth(CM) on Ethernet ports
Conducted RF immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz
Magnetic field immunity	IEC 61000-4-8: 30A/m long duration and 300A/m short duration at 50 and 60 Hz
Oscillatory surge withstand	IEEE C37.90.1: 2.5kV
Voltage variation	IEC 61000-4-29: 10 ms interruption on DC supply ports

Certifications

Certifications (when product is marked)[1]	Value
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584. UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E194810.
CE	European Union 2004/108/EC EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)

Certifications

Certifications (when product is marked)[1]	Value
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
Ex	EN 60079-15; Potentially Explosive Atmospheres, Protection "n" EN 60079-0; General Requirements (Zone 2) II 3 G Ex nC nL IIC T4X
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications

[1] See the Product Certification link at www.ab.com for declarations of conformity, certificates, and other certification details.

Additional Resources

These documents contain additional information concerning related Rockwell Automation products.

Resource	Description
Stratix 8000 and 8300 Ethernet Managed Switches Software User Manual, publication 1783-UM003	Provides detailed information on configuring and managing your switches.
Stratix 8000 and 8300 Ethernet Managed Switches Release Notes, publication 1783-RN002	Lists enhancements and anomalies associated with the software release.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, http://ab.com	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at http://literature.rockwellautomation.com.

To order paper copies of technical documentation, contact your local Rockwell Automation distributor or sales representative.

Notes:

Notes:

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At http://support.rockwellautomation.com, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit http://support.rockwellautomation.com.

Installation Assistance

If you experience a problem within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your product up and running.

United States	1.440.646.3434 Monday – Friday, 8 a.m. – 5 p.m. EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor in order to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

www.rockwellautomation.com

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78-18478-04

Printed in China PRC.